Figure 9 shows a further variant of the channel description with only one information element and with a flag being set.

Figure 10 shows a further variant of a channel description with one information element with fixed reference to uplink and downlink.

Figure 11 shows a general channel description for an uplink channel.

Figure 12 shows a shortened channel description according to figure 11 for channels which differ in their spread-spectrum code.

Figure 13 shows a general channel description for a downlink channel.

Figure 14 shows parameters for a channel description in the FDD mode of UMTS.

Figure 15 shows a variant of a channel description by means of two information elements for each channel in the FDD mode of UMTS.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

Please replace the paragraph beginning line 37 of page 4 with the following rewritten paragraph:

The invention performs an efficient description of the channels with little signaling expenditure.

Please delete the paragraph beginning at line 4 of page 5 in its entirety.

Please replace the consecutive paragraphs beginning at line 15 of page 5 with the following rewritten paragraphs:

In one embodiment of the invention, there is a method for assigning channels for a radio transmission between a subscriber station and a base station of a radio communications system provides

- a number of channel resources are unambiguously assigned to the subscriber station by means of a common channel description transmitted to it for the radio transmission
- and the channel description contains information on the order of utilization of the channel resources during the radio transmission.

According to another embodiment of the invention, the order of the utilization of the channel resources is specified by the order of the information of the individual channel resources within the channel description.

On the one hand, the fixed duplex spacing between the uplink band and the downlink band in the FDD mode is cancelled by dividing the paired band into FDD and TDD. On the other hand, any fixed allocation of the timeslots to downlink and uplink within a timeslot frame is cancelled with respect to a simultaneous support of symmetric and asymmetric services in the TDD mode. Hence, the position and spacing of the downlink channel and the uplink channel are unambiguously defined in a channel description for a channel assignment, independently of the transmission resource used.

For this purpose, the uplink channel and downlink channel are described one after the other in a common information element and sent from the base station to a subscriber station in a system information in the dedicated control channel (DCCH) in an embodiment of the invention. According to a further embodiment, two information elements are set up for the uplink channel and the downlink channel and are transmitted separately. According to a further embodiment, a channel assignment is carried out by describing one channel when, for example, the uplink and the downlink channel differ in the timeslot number and all other parameters are identical. According to a further embodiment, both channels are described in a common information element and a flag indicates what applies to the uplink channel and what applies to the downlink channel. This corresponds to a new transmission parameter UL/DL within the system information message. A further channel description according to the invention is organized in such a manner that one information element describes the uplink channel whereas the downlink channel is described by a new transmission parameter. With regard to multicarrier multifrequency mobile radio systems, the frequency spacings between uplink channel and downlink channel are specified in an information element in a further embodiment. In a case where, for example, more than one physical channel is to be provided to the user for the purpose of real-time data transmission in one direction, the order in which the channels are to be used is unambiguously specified in the channel description in a further embodiment. In a scaling down of this proposal, the order of channel utilization can be given by specifying the relevant spread-spectrum code or also by specifying the frequency.

In the case of a channel change, either the downlink channel or the uplink channel can be changed which is why, according to the invention, a channel description is provided for the downlink channel or for the uplink channel in these cases, and not for both directions at the same time.

Please delete the paragraph beginning at line 4 of page 7 in its entirety.

Please replace the paragraph beginning line 23 of page 8 with the following rewritten paragraph:

In a UMTS mobile radio network used as an example of a radio communications system, a subscriber station MS and a higher-level base station MS, which is to be used as an example of a station of a radio cell, of a sector of a radio cell or of a network itself, communicate, according to figure 1, via a radio interface downlink DL and uplink UL, either in the TDD mode or in the FDD mode of UMTS. The base station BS can set up a connection to another subscriber station MS, for example a mobile station or any other mobile or stationary terminal via a further radio interface (not shown).

Please replace the paragraph beginning line 3 of page 9 with the following rewritten paragraph:

However, partitioning of the channels in FDD and TDD eliminates the fixed duplex spacing of the FDD channels in the paired band between uplink and downlink, which is why the frequency spacing of a downlink channel and an uplink channel must be specified in the case of an assignment. Similarly, specification is necessary in the TDD mode with regard to the simultaneous support of symmetric and asymmetric services.

Please replace the paragraph beginning line 30 of page 9 with the following rewritten paragraph:

An advantage of the TDD mode is the variable switching point between downlink and uplink within a timeslot frame. The variable switching points make it possible to use the available resources more efficiently for asymmetric services. For example, the switching point can be adjusted in such a manner that 12 timeslots of the timeslot frame are available for the downlink DL and the remaining 4 timeslots are available for the uplink UL (figure 4). Subtracting two timeslots for control channels, a total of 14 timeslots would thus still be available for traffic channels, 11 timeslots of which could be allocated to the downlink and 3 timeslots to the uplink. In this case, the TDD mode can support higher data rates in the downlink direction than in the uplink direction. The switching point SP can be adjusted by the network by "operations and maintenance" or also automatically varied in accordance with the current traffic volume.

Please replace the consecutive paragraphs beginning line 13 of page 10 with the following rewritten paragraphs:

A system with 3 switching points within a timeslot frame according to figure 5 will now be considered. If the uplink timeslot 15 is allocated to a subscriber station MS for a voice link, the downlink timeslot can be allocated to the subscriber station MS either from the range of timeslot 1 to 4 or from the range of timeslot 9 to 13. These timeslots ts are either less than 8 timeslots or more than 8 timeslots away from timeslot 15, 8 timeslots corresponding to a period of 5 ms, i.e. one half of the frame period of a 10-ms timeslot frame. This means that, with a variable switching point SP, the uplink channel and the downlink channel are unambiguously specified during the channel assignment.

In figure 6, the parameters for a channel description in the TDD mode of UMTS without frequency hopping are designated. A specific physical channel can be accurately defined with values for the type of the logical channel/subchannel, for the timeslot number TN, for the code group, for the spread-spectrum code, for the midamble MA and for the frequency f.

Please replace the consecutive paragraphs beginning at line 1 of page 12 with the following rewritten paragraphs:

In the first octet, bits 1 to 7 include the message type, namely: information elements IEI for the separate channel description in the uplink UL and in the downlink DL, respectively. Bit 8 is free. In the second octet, bits 1 to 4 specify the timeslot number TN in the uplink UL and the downlink DL, respectively, bits 5 to 8 specify the channel type which, as already mentioned, can be the same in the uplink UL and downlink DL. In the third octet, bits 1 to 4 specify the spread-spectrum code and bits 5 to 8 specify the midamble number MA, in the uplink UL and downlink DL in each case. In the fourth octet, bits 1 to 8 are set for identifying the code group in the uplink UL and downlink DL, respectively, and the bits in the fifth octet designate the frequency of the channels in the uplink UL and the downlink DL. Each channel is thus unambiguously characterized.

In a case where an uplink channel and a downlink channel differ, for example, by a timeslot number, a channel description can also be implemented by one information element IEI (DL_UL). The information element IEI (DL_UL) then specifies that downlink DL and uplink UL differ by 8 timeslots TN and the parameters of the downlink DL and uplink UL are otherwise identical. Such an information element IEI (DL_UL) is shown in figure 8.

Another solution includes one information element IEI added to the channel description and flags in bit 8 in the 5th and 9th octet mark which description applies to the uplink channel UL and which applies to the downlink channel DL. Figure 9 shows an example of this.

A14 cont.

In a further embodiment, the first channel description, for example, relates to the uplink channel UL and other parameters describe the downlink channel DL. The information element IEI according to figure 10 specifies such a channel description.

Please replace the consecutive paragraphs beginning at line 32 of page 13 with the following rewritten paragraphs:

A14 cont.

Apart from voice services, there are also data services which can have a higher or lower rate. In the case of a real-time service, the same number of resources are provided for the uplink channel and the downlink channel. In the case of a 144-kbit/s real time service, 4 channels are needed in each direction. All channels can have almost the same parameters with the exception of the spread-spectrum code. Naturally, a number of parameters can also be different.

The appearance of a general representation of a channel description for the uplink channel UL for a 144-kbit/s real-time service could correspond, for example, to an information element IEI(UL) according to figure 11. It should be noted that the order in which channels 1 to 4 are to be used is unambiguously specified in the channel description if more than one physical channel is provided in one direction.

A15

A shortened channel description may also be specified, according to figure 12, with an information element IEI(UL) if the 4 uplink channels differ in the spread-spectrum code and, the order of channel use is governed by this spread-spectrum code information. The order also specifies the order in which the data are transmitted. This information is significant, in particular, in the case of data with higher bit rates. There is a so-called priority list.

In the Claims:

What is claimed is:

1. (Amended) A method for assigning channels for radio transmission between a subscriber station and a base station of a radio communications system, comprising:

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